Facebook as a recruitment tool for adolescent health research:

A systematic review

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Abstract

BACKGROUND: Researchers are increasingly using social media to recruit participants to surveys and clinical studies. However, the evidence of the efficacy and validity of adolescent recruitment through Facebook is yet to be established.

OBJECTIVE: To conduct a systematic review of the literature on the use of Facebook to recruit adolescents for health research.

DATA SOURCES: Nine electronic databases and reference lists were searched between 2004-2013.

STUDY ELIGIBILITY CRITERIA: Studies were included in the review if; 1) participants were aged ≥10 to ≤18 years, 2) studies addressed a physical or mental health issue, 3) Facebook was identified as a recruitment tool, 4) recruitment details using Facebook were outlined in the methods section and considered in the discussion, or information was obtained by contacting the authors, 5) results revealed how many participants were recruited using Facebook, and 6) studies addressed how adolescent consent and/or parental consent was obtained.

STUDY APPRAISALS AND SYNTHESIS METHODS: Titles, abstracts and keywords were scanned and duplicates removed by two reviewers. Full texts were evaluated for inclusion criteria and data was independently extracted by two reviewers.

RESULTS: The search resulted in 587 publications, of which 25 full-text papers were analysed. Six studies met all the criteria for inclusion in the review. Three recruitment

methods using Facebook was identified; 1) paid Facebook advertising, 2) use of the Facebook search tool, and 3) creation and use of a Facebook Page.

CONCLUSIONS: Eligible studies described the use of paid Facebook advertising and Facebook as a search tool as methods to successfully recruit adolescent participants. Online and verbal consent was obtained from participants recruited from Facebook.

Introduction

As adolescent health researchers, the authors are interested in understanding the effectiveness of Facebook as a recruitment tool to engage young adolescents in health studies, particularly as adolescent recruitment for health research can be challenging.[1-3] Adolescents are viewed as the natural target for social media use,[4,5] but this assertion requires further investigation regarding how social networking sites are being used to recruit adolescent participants. There is no financial cost to sign up to Facebook, however researchers should take into consideration of costs to use additional features such as advertising for research recruitment. Caveats of minimum age requirements to sign up to social networking sites, and specific considerations around consent and confidentiality, must not be overlooked if social media are used in adolescent research. The aims of this systematic review were to firstly describe how Facebook was used to recruit adolescent participants for health studies, and secondly, to identify how consent is obtained when Facebook is used to recruit adolescents.

Methods

A systematic search was conducted in November 2013 to review papers which described the use of Facebook as a recruitment tool for adolescent health research.

Eligibility criteria

Studies were included in the review if; 1) participants were adolescents aged between ≥10 to ≤18 years (as parent/guardian consent is mandatory), 2) studies addressed a physical or mental health issue (no limit on study design), 3) Facebook was identified as a recruitment

method used, 4) details regarding how Facebook was used to recruit participants was outlined in the methods section and considered in the discussion, or information was obtained by contacting the authors, 5) results revealed how many participants were recruited using Facebook, and 6) studies addressed how adolescent consent and/or parental consent was obtained. Our review only included peer reviewed publications written in English. Any paper that was not a journal article of original research (eg. review, report, conference paper or presentation, meeting programs, bibliography, etc.) was excluded.

Search criteria

The following nine electronic databases were used; Cinahl via Ebsco, Embase, Informit, Medline (via OvidSP), ProQuest Central, PsycINFO (via OvidSP), ScienceDirect, Scopus, and Web of Science. The review years spanned from 2004 (when Facebook was founded[6]) to November 2013. These databases were selected because they are the major health and science field repositories for peer-reviewed scholarly research. The search strategy for Medline with the key words used is presented as an example in Table 1. The search format used in the other databases was modified to their requirements. Medline and PsycINFO allowed for limits on age, which we set to include child (6 to 12 years), or adolescent (13 to 18 years). Limits to subjects were available, allowing the selection of relevant health related categories including, general health (Informit), Medicine and Dentistry, Neuroscience, Nursing and Health Professions, Psychology, Social Science (ScienceDirect); and the exclusion of subjects such as Business, Management and Accounting, Engineering, Mathematics (Scopus). In the ProQuest Central database, the search was further limited to exclude Features, General Information, Conference, News, or Speech/Lecture. No limit was set on geographic location. Reference lists of selected papers were manually hand-searched for further records. Titles

containing 'adolescent', 'adolescent health', 'young people', 'Facebook', and 'recruitment', were highlighted and full papers searched to assess eligibility for review.

Article selection

Papers were exported into the referencing software, EndNote. One reviewer (KA) scanned all the entries and removed the duplicates. Any paper that was not a journal article of original research and not excluded through the limitations of the search was also removed. KA scanned the title, abstract and keywords of all the remaining articles and when the title or abstract provided insufficient information, the full text paper was retrieved and scanned for eligibility. A second reviewer (KS) screened 120 papers (25% of records following the removal of duplicates) for potential review. Discrepancies were resolved through discussion and mutual agreement. The full text of relevant papers was retrieved for further analysis by two reviewers (KA, KS) and was either included or excluded for review based on the eligibility criteria. In cases of uncertainty, authors were contacted by e-mail for clarification. We report on the elements of potential scope, language and publication bias[7] in our discussion.

Data extraction

An extraction table was created to assess the eligibility of the papers, independently completed by KA and KS. Table items included; source, age group, gender, purpose of study, design of study, participant consent, Facebook component (description of the Facebook recruitment method), recruitment outcome (eg., the number of participants recruited), Facebook costs (any financial charges to the researchers for using Facebook), and participant

consent. Studies which did not meet the eligibility criteria as completed in the table were excluded and presented in Table 2. Where Facebook was identified as a recruitment method, but no details were provided in the methods or results section, corresponding authors were contacted by KA, for further information. Authors were contacted twice over a three week period in attempts to obtain the information required to include the study in the review. Two authors replied with information. Information supplied by one author was enough to complete the extraction table and included in the review. A decision was made to exclude the other study as it did not meet the criteria for a health issue. The studies whose authors did not respond to our e-mails were excluded from the review based on the limited information presented in their paper. Following data extraction, KA and KS finalised the list of articles to be included in the review through discussion and mutual agreement.

No formal assessment of study quality was done with standardised tools. Given the heterogeneity of the outcomes and the paucity of the papers available for this systematic review, no further analyses were performed and the results are presented as descriptive data.

Table 1: Search strategy for Medline

Results

The search resulted in 587 papers exported into EndNote. We removed 116 duplicates and 446 papers which did not meet the criteria. A total of 25 full-text papers were obtained for analysis (Figure 1). Only six studies met all the criteria for inclusion in the review (Table 3). The excluded papers and the reasons for exclusion are described in Table 2.

Figure 1: PRISMA flow diagram of the selection process for this systematic review

Table 2: Description of full papers from the database search, excluded from our review (arranged by publication year and author surname)

Table 3: Description of full papers included in our review (arranged by publication year and author surname)

One of the inclusion criteria for the review was that details regarding how Facebook was used as a recruitment tool were to be outlined in the methods section and considered in the discussion. Fenner et al.[28] and Jones et al.[29] were the best examples providing detailed accounts of their use and experience with Facebook as a recruitment tool. During the review, three key modes of Facebook used for recruitment was identified; 1) paid advertising, 2) using the Facebook search function, and 3) creation and use of a Facebook Page. In addition, traditional recruitment methods were also used.

Paid advertising on Facebook

Four studies recruited participants by advertising on Facebook.[27,28,31,32] To recruit participants into their study, Ellis et al.[27] used a single Facebook advertisement with the short title: "Mental health and technology", an image, and the description "Tell us what you think about how technology might be used to encourage young people to engage with mental health services". Fenner et al.[28] used several advertisements containing titles including "It's all about you" and "Tell us what you think". Images or photographs of young women from different ethnic backgrounds participating in exercise or social activities were also included.

Researchers were able to target their advertisement to their required audience by including age limits into the criteria for the advertisement.[27,28,31] For example, two studies[27,31] were only shown to Facebook users who were aged between 16 and 24 years as set by the researcher's criteria. Only one study[32] did not target a specific age group, which made the advertisement available to a general audience.

The studies used the cost per click (CPC) option which only charged the researchers a fee when a potential participant clicked on their advertisement.[33] The cost range of advertising was between $USD0.39 per click[31] and $USD0.67 per click.[28] The length of time an advertisement was used on Facebook for recruitment ranged from as short as one week[32] to nine months.[31] Interested users who clicked on an advertisement were directed to an external study website for more information, consent pages, and to the external SurveyMonkey® website[34] for data collection.[27,28,31] Details of the number of advertisement clicks are listed under *recruitment outcome* in Table 3. Total recruitment numbers from paid Facebook advertising ranged from 1038 online surveys over a three month campaign[27] to 88 surveys over nine months.[31] A four month Facebook advertising campaign, recruited 278 participants, to which 139 participants visited the study site to complete a questionnaire and 139 completed the same questionnaire remotely.[28,30] Close et al.[32] recruited 16 participants during a one week campaign. The average cost of advertising per participant recruited is presented in Table 3.

Searching through Facebook

One study used the Facebook search tool to locate participants from their earlier study into a follow-up study.[29] A research Facebook profile was created using the contact details of the recruitment coordinator with a picture of the study's logo as the profile picture. Using this profile, researchers used the participant's name, high school graduation year, and geographic location to search for users. Verified participants found on Facebook were sent friend requests and an invitation to participate in the follow-up study. This method recruited 43 participants, and did not incur direct charges.

Facebook Page

One study created a Facebook Page.[26] No details on the creation or use of the Page for recruitment was supplied in the publication or through e-mail communication with the author. The author reported the recruitment of six participants (from a total sample of 87) solely from the study Facebook Page.

Additional recruitment methods and incentives used

Four of the six studies used other recruitment methods in addition to Facebook.[26,27,29,32] Hilton and Smith used newspaper advertisements and posters, leaflets and adverts placed in educational, community and leisure and sports facilities. Youth group leaders and community members were also used to supply information to potential participants. Ellis et al.,[27] used a flyer and a link to the study survey which were sent via e-mail to youth organisations including youth centres and clinics, online service providers, charities, colleges, universities, and relevant government organisations. Snowball recruitment was also used in this study as participants who completed the questionnaire were encouraged to promote the study to their

peers, who then also completed the questionnaire and further promoted it to their network of friends. Additional recruitment by Jones et al.[29] included mailing postcards, school visits and cold-calling, using contact details provided by participants. Close et al.[32] used recruitment brochures and flyers in hospitals and health clinics, direct letters to physicians and patients, and face-to-face recruitment in a clinical setting. Other information technology and social networking recruitment techniques such as advocacy group, support groups, teleconference and the web-based RecruitSource® program[35] were also used.[32]

Three studies used monetary incentives to encourage and compensate participants.[26,28,29] All participants in the Hilton and Smith[26] study were given £10 for participating (at the time of submission, £1 was equivalent to $US1.68). Participants were provided with $Australian Dollars(AUD)15.00 incentive to complete an online survey in another study.[28] In addition, participants who visited the offline study site to complete the survey were offered $AUD25.00 (and up to $AUD70.00 travel reimbursement if travelling from regional areas). (At the time of submission $AUD1.00 was equivalent to $USD0.90). Researchers invited participants to complete the survey at the study site to assess the proportion of young females who would travel to participate in a study. In another study,[29] monetary compensation of $USD75.00 was provided for participants who completed additional body composition measurements.

Ethical issues

All studies reported ethics approval from institutional review boards (IRB). In the studies which used paid Facebook advertising, participants provided consent online,[27,31] and verbally over the phone.[28,30] Participants under the age of 18 years in one study[28,30] were asked over

the phone about their understanding of the nature and rationale of the study including their own participation roles to further assess maturity to provide adolescent consent. Written consent was obtained from participants who visited a study site to complete the survey.[28,30] Close et al.[32] did not reveal how consent was obtained from participants recruited through Facebook. The authors were contacted for clarification and confirmed that potential participants who clicked on the Facebook advertisement were directed to the study website for further information. Parental consent and assent from adolescents under 18 years were made at a face-to-face appointment where study procedures were explained. Participants older than 18 years signed their own consent forms. In the study by Jones et al.[29] parental permission and minor assent was obtained in an initial study, which stated that participants might be re-contacted in the future. This prescience enabled researchers to use Facebook to search for participants to recruit into their follow-up study. In the study by Hilton and Smith,[26] participants under the age of 16 were sent information and adolescent and parental consent forms to be completed prior to participation in the focus goups. Participants aged over 16 years provided written consent at the focus group.

Discussion

The evidence from our systematic review suggests that paid advertising on Facebook has the ability to recruit participants who meet a researchers' target gender, age and geographic location.[27,28,30-32] Facebook advertising can also theoretically add a wider and more targeted method of promotion to recruit participants in addition to the traditional methods of printed flyers, mail-outs, telephone cold-calling, and education-based recruitment as utilised in the studies in this review, particularly for hard to reach populations dealing specifically with sensitive health issues.[30-32]

Advertisements on Facebook must adhere to language and image guidelines. The headline has a limit of 25 characters and a 90 character limit for the body text of the advertisement and images are required for all advertisements (animated or flash moving images are not supported).[36,37] These restrictions may compromise the interest level of users for recruitment and the requirements of an ethics review board, but may be overcome by directing potential participants to a study website for further information.

The cost efficiencies of Facebook advertising are attractive. Researchers are only charged when a potential participant clicks on the advertisement. In addition, study advertisements are only presented to Facebook users who meet the study criteria set by the researchers. This limits unnecessary advertising (and costs) to individuals who would be ineligible to enrol. As little as $AUD0.60[27] and as much as $USD20.14[28] was spent on average per participant to complete a survey. The detailed description of the CPC option, selection criteria and dates used to advertise on Facebook in the papers reviewed supplies useful information to other researchers. Where cost may be a concern, the use of Facebook as a directory to locate and contact participants may be an alternative. However, this might only be possible in studies which have an existing database of participants and where previous consent for recontact has been obtained. As a free social networking platform, this recruitment method did not place a financial burden on Jones et al.,[29] which is highly beneficial as funds for recruitment are often limited.

Only one study[26] identified the exact number of participants (6) recruited from their use of Facebook Pages. Their ages however, were not supplied. The other studies in this systematic review do not provide sufficient data to distinguish the utility of Facebook as a recruitment

tool without the concurrent use of traditional recruitment methods. Four studies[26,27,29,32] reported the use of traditional recruitment methods in addition to the use of Facebook, presumably to increase the coverage of potential participants. However, this approach may make it impossible to determine the relative effectiveness of each recruitment method without the direct enquiry of each participant. Close et al.[32] reported that their use of traditional recruitment methods was not as successful as their use of information technology and social networking techniques. Facebook advertising was found to have had the greatest impact over the least amount of time. This was also the only study in the review to have recruited participants under the age of 13 years. With an age restriction to sign up to Facebook set at a minimum of 13 years,[38] the authors did not identify whether these adolescents were recruited through Facebook or other recruitment means used in the study.

What remains unclear is how best to utilise Facebook with adolescents under 18 years of age. Ethical concerns surrounding consent on Facebook might explain the lack of research with this demographic group, yet Facebook as a recruitment tool appears to have some value.

The majority of IRBs would require the explicit consent of parents for participants under the age of 18 years and almost always for participants under the age of 16 years, particularly for sensitive subjects. Parental consent is mandatory for those under 14 years. It is difficult to envisage how these could be fulfilled using Facebook. The studies reviewed reported various ways to obtain consent following Facebook recruitment. In the study by Close et al.[32] potential participants were directed to the study website from Facebook and consents were collected from parents, and assent from adolescents, at a face-to-face appointment. This was the only study reviewed which addressed the ethical dilemmas of recruiting younger adolescents by Facebook, including the need for parental consent, developing trust from both

parents and the participating adolescent, and effective discourse between parent, adolescent and researcher. There is a need for further research on the utilisation of age verification and parent permission portals that connect externally to Facebook for the purposes of medical and health research (e.g., the ethical viability and efficacy of Survey Monkey® as an adjunct research tool for age verification and parental consent attainment in Facebook recruitment).

Whether the adolescent has enough knowledge and understanding of what it means to participate in research, is paramount in adolescent research.[39] Younger adolescents who may not have reached cognitive maturity would not be able to provide informed consent[39-41] on Facebook as they are ineligible by age to sign up anyway. Studies looking to recruit adolescents under 18 years of age could potentially benefit from targeting relatives of the intended subject group (e.g., parents, siblings, extended family) who are over 18 years and on Facebook, who can then have discussions with the young adolescent about participation. The shift could be made away from direct recruitment of adolescents active on Facebook, to targeting parent populations on Facebook. This is particularly important where research is not collecting data about the adolescent's behaviour online, but rather to participate in human-subject research, when parental consent is essential.

Research is showing an increasing trend of parents also using Facebook.[42-44] Parents were found to be motivated to use Facebook initially to monitor their children, but also became attracted to connecting with their own friends.[42] Therefore, there is the potential to use Facebook to target parents to recruit their children for health studies as this demographic grows. The same ethical standards and protocols would apply to parents recruited online, as if they were responding to other traditional recruitment sources.

Limitations to our study include the low number of papers. The scope of our search was very specific, intended to focus on the use of Facebook to recruit young adolescent participants for health research. Some of our selection criteria may have led to a scope bias which limited the availability of papers included for review. This includes potential language bias towards English only papers and publication bias where grey literature such as conference proceedings was excluded. As a globally used social networking site, Facebook may have been used in recruitment in some manner but not detailed in the methodology. All of these situations may have limited the identification of studies, resulting in the low number of papers included in our review.

To our knowledge, no systematic review, focused specifically on the use of Facebook in the recruitment of young adolescents for health research has been published. The recent systematic review by Park and Calamaro[45] was directed at the use of different social networking site (Facebook, MySpace, Bebo, Hi5) throughout the whole research process and with an age range of 13 to 25 years for health research. Their search identified only three studies which used Facebook to recruit adolescents and young adults (two of which were included in our review and one that was excluded on the basis of not meeting the age criteria). Our search revealed an additional four studies explicitly for the recruitment of young adolescents for health research.

Future direction of Facebook in health research:

The studies reviewed in this paper suggest the potential value Facebook has as a recruitment tool for adolescent health research, and may aid future investigations. Another Facebook application which may have potential as a recruitment tool, is Facebook Pages. As stated in

the Facebook Statement of Rights and Responsibilities,[36] the use of Facebook for commercial purposes should be conducted using Facebook Pages and not personal profiles. Facebook Pages is designed for the use of organisations to showcase their work, and to communicate and interact with online supporters.[46] Information on the development and use of a research Facebook Page for the recruitment of adolescent participants is limited, but conceptually Facebook Pages might have potential for both recruitment and retention in research. Future research could utilise Facebook Pages to create an online presence to connect with interested supporters and existing participants by providing study updates and related links. A further potential benefit of this connection would be the reduction in the effort and time resources in searching for participants for follow-up studies.[29]

Recruitment through an online platform can open up the possibilities for a greater reach of eligible participants. Our review has also exposed important consent issues. If care has been taken to address the issues however, the future use of Facebook can have the capacity to add to existing methods of recruiting participants. Further publications addressing the methodology behind the type of Facebook application used to recruit, and possibly retain, their participants would enhance and refine scientific evidence for the best practice of Facebook in adolescent health research.

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Table 1: Search strategy for Medline

Table 2. Description of full papers from the database search, excluded from our review (arranged by publication year and author surname)

Table 3. Description of full papers included in our review (arranged by publication year and author surname)

Figure 1. *PRISMA flow diagram of the selection process for this systematic review*

[a] Seven full-text papers were included in the review, two of which were reporting on the same study.

WHAT THIS SYSTEMATIC REVIEW ADDS

This systematic review:

- summarises available evidence identifying the value of Facebook advertising and use as a search tool has in the recruitment of adolescents,

- builds on existing ethics literature on the use of Facebook in adolescent health research.

HOW TO USE THIS SYSTEMATIC REVIEW

Researchers may use the details in this review to;

- assist them in deciding the most appropriate and feasible Facebook recruitment technique to use in their own studies,

- consider the ethical issues identified when using Facebook to recruit young adolescents.